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ABSTRACT

This report explores the effects of teacher professionalization on elementary and secondary teachers in the United States. The analysis examines the relationships between a set of characteristics traditionally associated with professions and professionals and teachers' commitment to their teaching careers. The report focuses on the following professional characteristics: (1) credentials--use of professional criteria for hiring teaching job candidates; (2) induction--provision of mentoring programs for beginning teachers and the effectiveness of assistance provided to new teachers; (3) professional development--extent of participation in activities sponsored by professional teaching organizations, and financial support; (4) authority--faculty influence over school policymaking and the degree of teachers' individual autonomy within their classrooms; and (5) compensation--the highest salary levels offered by schools. The data source was the 1990-91 Schools and Staffing Survey (SASS). Data analysis revealed that four characteristics in particular were associated with commitment: teacher classroom autonomy, faculty policymaking influence, effectiveness of assistance for new teachers, and teachers' maximum end-of-career salaries. In contrast, several traditional indicators of teacher professionalization were not associated with higher teacher commitment: use of professional criteria for hiring teaching job candidates, financial support for teachers' continuing education, and participation in activities sponsored by professional teaching organizations. The appendix lists additional resources on SASS. (Contains approximately 50 references.) (ND)

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Statistical Analysis Report January 1997

Teacher Professionalization and Teacher Commitment: A Multilevel Analysis

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Statistical Analysis Report — January 1997

Teacher Professionalization and Teacher Commitment: A Multilevel Analysis

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Office of Educational Research and Improvement — NCES 97-069

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Executive Summary

Teacher professionalization—the movement to upgrade the status, training, and working conditions of teachers—has received a great deal of interest in recent years. This report is concerned with the effects of teacher professionalization on elementary and secondary teachers in the United States. The analysis assesses the effects of teacher professionalization by examining the relationships between a selected set of characteristics, traditionally associated with professions and professionals, and one of the most important aspects of the quality and performance of teachers: their commitment to their teaching careers.

The following characteristics of professions and professionals are focused on in this report:

Credentials:
- the use of professional criteria for hiring teaching job candidates

Induction:
- the provision of mentoring programs for beginning teachers
- the effectiveness of assistance provided to new teachers

Professional Development:
- the extent of participation of teaching staffs in activities sponsored by professional teaching organizations
- the provision of financial support for teachers' continuing education

Authority:
- the extent of influence collectively wielded by faculties over school policymaking
- the degree of individual autonomy exercised by teachers over planning and teaching within their classrooms

Compensation:
- the highest salary levels offered by schools

The data source for this analysis is the nationally representative 1990–91 Schools and Staffing Survey (SASS), conducted by the National Center for Education Statistics (NCES). The analysis uses hierarchical linear modeling, a multiple regression statistical method designed for use with multilevel data, to assess the relationships between the above measures of professionalization and teacher commitment, while holding equal, or controlling for, a number of background characteristics of both schools and teachers.

The results show that some characteristics of professionalization are related to teacher commitment, and some are not. Four aspects of professionalization, in particular, stood out for

their association with commitment: the reported amounts of teacher classroom autonomy; the reported amounts of faculty policymaking influence; the reported effectiveness of assistance for new teachers; and teachers' maximum end-of-career salaries. When comparing across the population of elementary and secondary schools, those with higher levels of each of these characteristics had higher levels of teacher commitment, after controlling for the other factors.

For example, 60 percent of schools with high levels of faculty policymaking influence had high teacher commitment; in contrast, only 18 percent of schools with low faculty policymaking influence had high teacher commitment. Likewise, 39 percent of schools with highly effective assistance for new teachers had high commitment; in contrast, only 23 percent of schools without effective assistance for new teachers had high teacher commitment.

On the other hand, several traditional indicators of teacher professionalization were not associated with higher teacher commitment to a statistically significant degree. These included the use of professional criteria for hiring teaching job candidates (certification, completion of teacher education program, passage of a teacher examination, college major/minor in the field to be taught); the provision of financial support for teachers' continuing education; and the degree of participation of teaching staffs in activities sponsored by professional teaching organizations. The results of this analysis also suggest that a school having a mentor program to assist beginning teachers is less important for teacher commitment than is the quality of assistance provided to new teachers. That is, simply offering formal mentoring programs did not appear to improve the commitment of teachers. But, the average commitment of teachers increased if, according to the teaching staff as a whole, new teachers were effectively assisted in matters of discipline, instruction, and adjustment to the school environment, whether from a mentor program or some other mechanism.

Introduction

Since the mid-1980s, a growing number of education reformers, policymakers, and researchers have argued that many of the well-publicized shortcomings of the elementary and secondary education system in the United States are, to an important extent, due to inadequacies in the working conditions, resources, and support afforded to school teachers. Proponents of this view hold, for example, that teachers are underpaid, have too little say in the operation of schools, are afforded too few opportunities to improve their teaching skills, suffer from a lack of support or assistance, and are not adequately rewarded or recognized for their efforts. The key to improving the quality of schools, these critics claim, lies in upgrading the status, training, and working conditions of teaching, that is, in furthering the *professionalization* of teachers and teaching. The rationale underlying this view is that upgrading the teaching occupation will lead to improvements in the motivation and commitment of teachers, which, in turn, will lead to improvements in teachers' performance, which will ultimately lead to improvements in student learning (e.g., Carnegie Forum 1986; Darling-Hammond 1984; Rosenholtz 1989; Sergiovanni and Moore 1989; Weis et al. 1989; Conley and Cooper 1991; Holmes Group 1986; Darling-Hammond 1995; Talbert and McLaughlin 1993).

This interest in the professionalization of teaching has gained recognition and impetus from a number of quarters. At the federal level, increased support for the professional development of elementary and secondary teachers was added to the national education goals through the Goals 2000 legislation (National Education Goals Panel 1995). At the state and local levels, numerous initiatives have been directed to upgrading the status, training, working conditions, resources, and support afforded to school teachers (Bacharach 1990; Darling-Hammond 1995).

But, although there has been a great deal of interest in the subject of teacher professionalization, confusion surrounds this topic. In the first place, among those concerned with the status of teaching as a profession, there has been little consensus as to what constitutes the proper target of research and reform. The rhetoric, research, and reform surrounding teaching as a profession has focused on a wide range of different aspects of teachers, teaching, and schools. There are, moreover, wide differences in what is meant by profession, professionals, professionalism, and professionalization. For example, staff development—training and educational programs designed to upgrade the skills and knowledge of teachers—is the primary focus of many researchers and reformers. To others, however, the degree of staff collegiality and collaboration is the key focus. Some seek to alter the individual attitudes teachers hold towards their work, such as the degree to which teachers support high academic standards, while others are concerned with changing the organizational conditions in which teachers work, such as the degree to which school decisionmaking is centralized. Finally, to others, occupational characteristics, such as increasing the licensing and certification requirements for entry into teaching, are the primary concern. As a result of

this wide range of emphases, it is often unclear whether researchers and reformers are referring to the same aspects and phenomena when they discuss or criticize the current status of teaching as a profession. (For examples of recent discussions of teaching as a profession, see Little 1990; Lieberman 1988; Rowan 1994; Talbert and McLaughlin 1993.)

Second, researchers and reformers alike have tended to assume that changing the teaching occupation will be highly beneficial and have primarily directed their focus to the ways and means of altering the current state of affairs. There has been much less attention, and empirical research, directed to empirically testing these many claims.

As a result of this wide variation in the definition of what constitutes a profession and professionalization, together with a shortage of empirical research, there is little consensus as to what degree schools currently exhibit the characteristics of professionalized workplaces and to what extent these characteristics vary across different kinds of schools. Moreover, it is unclear to what extent the teaching occupation has undergone changes over this period of school reform. Finally, little is known of what ways the many different aspects of professionalization affect teachers and teaching.

In order to address these issues, the National Center for Education Statistics (NCES) has sponsored several recent research projects on the teaching occupation. *America's Teachers: Profile of a Profession* provides a comprehensive compendium of a wide range of information on elementary and secondary teachers and teaching in the United States (Choy et al. 1993a). A second, briefer report, *America's Teachers Ten Years After "A Nation at Risk,"* examines changes in the state of the teaching occupation from the mid-1980s to the mid-1990s (Smith 1995). Finally, a third report, *The Status of Teaching as a Profession*, provides an empirical examination of the state of elementary and secondary teaching as a profession in the United States (Ingersoll 1996a). Focusing on a series of characteristics traditionally used to distinguish professions and professionals from other kinds of work and workers, this latter report describes the levels and variations in the extent to which elementary and secondary teaching can and cannot be considered a profession. The results show that, in fact, there is wide variation in the degree to which different kinds of schools exhibit the characteristics of professionalized workplaces.

The present report builds on these other projects by turning to the topic of what difference the degree of professionalization makes for those in schools. It assesses the impact of professionalization by examining the relationship between a number of different kinds and examples of teacher professionalization and the commitment of teachers to their teaching careers.

To education researchers, the degree of teacher commitment is one of the most important aspects of the performance and quality of school staff. Commitment is defined here as the degree of positive, affective bond between the teacher and the school. It does not refer to a passive type of loyalty where teachers stay with their jobs, but are not really involved in the school or their work. Rather, it reflects the degree of internal motivation, enthusiasm, and job satisfaction teachers derive from teaching and the degree of efficacy and effectiveness they achieve in their jobs. Proponents of teacher professionalization have argued that improvements in the commitment of teachers is one of the outcomes most likely to be positively affected by the new teacher reform efforts. They argue that increasing the

commitment of teachers is an important first step in the process of school reform: professionalization of teachers will result in higher commitment, which will positively affect teachers' performance, which will ultimately lead to improvements in student learning. Not surprisingly, teacher commitment has been the subject of a great deal of educational research. (For reviews, see Miskel and Ogawa 1988; Reyes 1990; Rowan 1990; Rosenholtz 1989.)

This analysis focuses on the first step in this theory of school improvement—understanding the impact of teacher professionalization on teacher commitment. It assesses this impact by using hierarchical linear modeling, otherwise known as HLM, which is a multiple regression statistical method designed for use with multilevel data. The objective of the analysis is to estimate the relationship between teacher professionalization and teacher commitment, while holding equal, or controlling for, a number of demographic characteristics of both teachers and the schools in which they teach.

This analysis is based on a series of traditional characteristics used to distinguish professions, professionals, and professionalized worksites from other kinds of work, workers, and workplaces. These characteristics are drawn from the sociology of work, occupations, and professions. Sociology has been among the most prominent disciplines to study the characteristics of professions. Sociologists have developed what is known as the *professional model*—a series of organizational and occupational characteristics associated with professions and professionals and, hence, useful to distinguish professions and professionals from other kinds of work and workers (Hughes 1965; Vollmer and Mills 1966; Hall 1968; Wallace 1994). These characteristics include rigorous training requirements, positive working conditions, high prestige, substantial authority, relatively high compensation, and an active professional organization or association. From this viewpoint, occupations can be assessed according to the degree to which they do or do not exhibit the characteristics of the professional model. The "established professions"—law and medicine, in particular—are usually regarded as the strongest examples of the professional model. The process whereby occupations seek to upgrade their professional status by adopting the attributes of the professional model is known as *professionalization*.

Sociologists have been careful to distinguish *professionalization* from *professionalism*. The former refers to the degree to which occupations exhibit the *structural* attributes, characteristics, and criteria identified with the professional model. The latter refers to the *attitudinal* attributes and ideology of those who are considered to be, or aspire to be considered as, professionals. These include a belief in the value of expertise, rigorous standards, and a public-service orientation. Although professionalism is often considered part of the professionalization process, it is not considered a reliable indicator of the professional model. On the one hand, some occupational groups that express the ideas and ideology of professionalism, in reality, may not be very advanced in regard to professionalization. On the other hand, some established professions that are advanced in regard to professionalization, in reality, do not widely exhibit the ideology and attitudes of professionalism (e.g., Hughes 1965; Vollmer and Mills 1966; Hall 1968).

The objective of this report is to examine the relationships between a number of different kinds and examples of teacher professionalization and the commitment of teachers to their teaching careers. The following section summarizes these traditional characteristics and

describes what effect education reformers have expected them to have on teachers' attitudes, performance, quality, and, specifically, their commitment to their careers.

Characteristics of Professions and Professionals

Credentials

Social scientists traditionally have distinguished professions from other kinds of occupations by the degree of expertise and complexity involved in the work itself. The assumption is that professional work involves highly complex sets of skills, intellectual functioning, and knowledge that are not easily acquired and not widely held. For this reason, professions are often referred to as the "knowledge-based" occupations (e.g., Hughes 1965; Hodson and Sullivan 1995). But, even if laypeople were to acquire these complex sets of skills and knowledge, they would not be able to practice as professionals. Professions require credentials. That is, nearly all professions require completion of an officially sanctioned or accredited training program and passage of examinations in order to obtain certification or licensure to practice. Indeed, it is illegal to practice most professions without a license (Collins 1979). These credentials serve as screening devices. Their objective is to protect the interests of the public by assuring that practitioners hold an agreed-upon level of knowledge and skill, and by filtering out those with substandard levels of knowledge and skill. The importance of such credentials is evidenced by the practice, commonly used by professionals, such as physicians, dentists, architects, and attorneys, of prominently displaying official documentation of their credentials in their offices (e.g., Hughes 1965; Etzioni 1969; Abbott 1988).

Upgrading the training and licensing requirements for new teachers has been an important focus of school reform over the past decade (e.g., National Commission on Excellence in Education 1983; Darling-Hammond 1984; Darling-Hammond 1995). Advocates of such reforms argue that teachers, like traditional professionals, should not be generalists, amateurs, or dilettantes, but experts. In this view, efforts to upgrade credential requirements, such as tightening the entry-level standards for new teachers, would not only help insure that teachers possess expertise in the bodies of knowledge they will teach, but would also increase their commitment to professional careers.

Induction

In addition to initial formal training and preparation, professional work requires extensive training of new practitioners once on the job. Such training is designed to pick up where pre-service training has left off. That is, although entry examinations in many professions are usually designed to insure that new entrants have a minimum or basic level of knowledge and skill, induction programs for practitioners are designed to augment basic levels of knowledge and skill. As a result, entry to professions typically involves both formal and informal

mechanisms of induction, such as internships, apprenticeships, or mentoring programs (Hughes 1965; Etzioni 1969; Larson 1977; Abbott 1988). Sometimes, these periods of induction can be prolonged and intensive, as in the case of physicians' internships. The objective of such programs and practices is to aid new employees in adjusting to the working environment, to familiarize them with the concrete realities of their jobs, and to provide a second opportunity to filter out those with substandard levels of skill and knowledge.

Mentoring or other programs designed to assist new teachers have also been the subject of recent school reform efforts. The teaching occupation has long been plagued by high attrition rates among new staff. School reformers have argued that one of the best ways to increase the efficacy and retention of new teachers is to assist them in coping with the practicalities of teaching, of managing groups of students, and of adjusting to the school environment (Sclan 1993; Murnane et al. 1991).

Professional Development

Beyond both pre-service basic training and mentoring, professions also expect ongoing in-service technical development and growth on the part of practitioners throughout their careers. The assumption is that achieving a professional-level mastery of the complex skills and knowledge required of a profession is a prolonged and continuous process of learning. Moreover, in addition to upgrading, this view holds that professionals must continually update their skills with advances in their field of technology, skill, and knowledge. As a result, professionalized workplaces typically both require and provide support for employee development and, in addition, recognize and reward employee growth through formal avenues of promotion and mobility (Hall 1968; Wallace 1994; Hodson and Sullivan 1995).

School reformers also have recognized the importance of professional development to foster the continuing engagement, enthusiasm, effectiveness, and retention of teachers. Indeed, as mentioned earlier, the national education goals formalized in the Goals 2000 federal legislation specifically call for increased support for the professional development of the teaching workforce in the United States (National Education Goals Panel 1995).

Authority

Another of the traditional attributes of professionals is the exercise of substantial authority in regards to workplace policies and processes. A key distinction in any organization is whether key policies and decisions concerned with technical and production processes are controlled from the administrative center or whether these are delegated to employees and, hence, decentralized. Professionalized employees have authority approaching that of management when it comes to decisions concerned with technical and substantive issues (e.g., Hall 1968; Larson 1977; Friedson 1986). The rationale behind a high degree of professional authority is to place appropriate levels of control and autonomy into the hands of those who are closest to and most knowledgeable of technical processes. That is, professionals are considered experts, in whom substantial authority should be vested. For example, in hospitals, physicians traditionally have had substantial control over medical decisions concerning the care of patients (Friedson 1986; Hodson and Sullivan 1995). Likewise, attorneys employed by law firms have traditionally had similar control over decisions concerning the provision of legal services for clients (Wallace 1994).

Increasing the authority of teachers has also been a key subject of recent education reform. Indeed, it is fundamental to site-based management, restructuring, and other such reforms designed to decentralize school decisionmaking (Johnson 1990; Ingersoll 1994, 1996b). Two forms of teacher authority are usually highlighted: the influence collectively wielded by faculties over school policymaking and the individual autonomy exercised by teachers over planning and teaching in their classrooms. Both are deemed of importance. Advocates of increases in faculty influence and increases in teacher autonomy argue that teachers will not only make better informed decisions about education issues than district or state officials, but that top-down decisionmaking often fails precisely because it lacks the support of those who are responsible for the implementation and success of the decisions. In short, reformers have argued that teachers cannot be expected to be highly committed to school decisions over which they have had no say (Shedd and Bacharach 1991; Conley and Cooper 1991; McNeil 1988).

Compensation

Professionals are typically well-compensated and are provided with relatively high salary and benefit levels throughout the career span (Hodson and Sullivan 1995). The assumption is that, given the complexity of the knowledge and skills required, relatively high levels of compensation are necessary to recruit and retain capable and motivated individuals (Etzioni 1969; Hodson and Sullivan 1995). Advanced or end-of-career salary levels, in particular, provide an indication of the ability of particular kinds of workplaces to provide opportunity for promotion, to foster ongoing motivation and commitment, and, hence, to retain capable individuals. (For an analysis of the determinants of teacher compensation, see Chambers 1996.)

In summary, the above series of characteristics have been widely used to distinguish professional from nonprofessional work, workers, and workplaces. These, of course, are not the only characteristics used to define professions, nor are they the only kinds of criteria used to distinguish among or to classify work and occupations in general. For instance, another traditional aspect of professions, not described here, is high prestige; professionals consistently are rated highly in surveys of occupational prestige (National Opinion Research Center 1983). Another traditional hallmark, also not described here, is self-governance. Professional organizations undertake much of the regulation of practitioners. For example, such organizations may set and enforce behavioral and ethical standards for practitioners, and may also exert substantial control over the curriculum, admissions, and accreditation of professional training schools (Hodson and Sullivan 1995). But, the above-described characteristics are among the most widely used indicators of professions and professionals, are the subject of much discussion in reference to teachers and schools, and are those for which national data are available.

The objective of this report is to evaluate the consequences of teacher professionalization in elementary and secondary schools by analyzing the relationship between teacher commitment and the above-described characteristics of professions and professionals.

Data and Methods

Data

The data source for this study is the 1990–91 Schools and Staffing Survey (SASS), a nationally representative survey conducted by NCES. The U.S. Census Bureau collected these data for NCES in the 1990–91 school year from a complex random sample stratified by state, sector, and school level. Because all figures and estimates in this report are based on samples, they are subject to sampling error. Standard errors indicating the accuracy of selected estimates are included in the tables. All comparisons and differences discussed in the text are statistically significant at the .05 level, unless otherwise noted.

SASS includes four sets of linked questionnaires: for each school sampled; for the principal or headmaster of each school; for the district office of each public school system; and for a subsample of the faculty within each school. From 3 to 20 teachers (an average of 4) were randomly sampled within each school, depending on the level, size, and sector of the school.

SASS is particularly useful for analyzing the professional aspects of teachers, teaching, and schools. It is the largest and most comprehensive dataset available on the staffing, occupational, and organizational characteristics of schools in the United States. Indeed, this survey was conducted because there had been a paucity of nationally representative data on such issues. It includes a wide range of information on the characteristics and work of teachers and the characteristics and conditions of schools and school districts across the country.

Because of its unusually large and comprehensive teacher and school samples, SASS is also especially useful for examining both teacher-to-teacher and school-to-school differences in the professional aspects of teachers and schools. The samples used in this analysis contain 11,589 schools and 53,347 teachers. More detail on the technical aspects of the 1990–91 SASS are included in the Technical Notes at the end of this report.[1]

[1] For information concerning survey design and sample estimation of SASS, see Kaufman and Huang (1993). For information about the quality of the data in SASS, see Jabine (1994). For manuals on the use of SASS, see Gruber, Rohr, and Fondelier (1993). For an extensive report summarizing the data used in this investigation and providing an overview of SASS, see Choy et al. (1993b).

Methods

This study drew items from the Teacher Demand and Shortage Questionnaire for Public School Districts, the Public and Private School Questionnaires, and the Public and Private Teacher Questionnaires of SASS to develop a series of empirical measures representing the five above-described characteristics of professions and professionals, for the case of teachers and schools.

For the measure of teacher commitment, the analysis uses a questionnaire item asking teachers to reflect on whether they actually want to be teachers: "If you could go back to your college days and start over again, would you become a teacher or not?" The premise underlying this analysis is that teachers who report they "certainly would become a teacher" in answer to this question, do so because they feel enthusiasm, engagement, and satisfaction with their teaching jobs. But, it should be noted that this item, of course, represents only one aspect of the multifaceted concept of commitment.

Along with professionalization, many other factors could affect the attitudes, and specifically, the commitment of teachers. It is reasonable to expect that some kinds of teachers would have more commitment than others and also that some kinds of schools would foster more commitment than others, regardless of how professionalized.

For example, not surprisingly, previous research has shown that, at the individual level, the demographic characteristics of teachers, such as their teaching experience, sex, race, and education, are often found to be strongly related to their attitudes and experiences in schools. Moreover, at the school level, among the key sources of such differences in teachers are the context of the school, its community setting, and the type of students enrolled (e.g., Pallas 1988; Rowan et al. 1991). The socioeconomic status of the community and students served by schools, in particular, has been shown to affect the experiences, behavior, and attitudes of teachers (e.g., Bidwell and Quiroz 1991; Kozol 1991). Sector differences also have been the focus of a number of studies of school organization, leading many to conclude that private schools are far different than public schools in the characteristics of their teaching staff (e.g., Chubb and Moe 1990). In addition, recent analyses have also shown distinct differences in teachers' experiences and attitudes among different kinds of private schools (McLaughlin, O'Donnell, and Ries 1995; Baker, Han, and Broughman 1996).

Hence, in order to discern the relationship between teacher professionalization and the degree of teacher commitment in schools, it is necessary to hold these other variables constant, or, in other words, to control for them. Thus, this analysis, in addition to teacher professionalization, also controls for the relationships between a series of teacher and school characteristics and teacher commitment. Following previous research, these other variables include school sector; size; urbanicity; level; and the race-ethnicity of the student population, as well as several key demographic characteristics of the teacher-respondents: levels of education; sex; experience; and race-ethnicity. Moreover, because public and private schools have been found to be distinctly different, the analysis will also examine the relationships between professionalization and commitment in each sector separately. Finally, for public schools, also included are the level of poverty of the student population served by the school and the size of the school district. For private schools, also included is the orientation or affiliation of the school.

These three sets of measures—teacher characteristics, school characteristics, and characteristics of professions and professionals—are defined in figure 1. Means of each of the empirical measures, by sector, are displayed in table 1. Further discussion of selected measures is provided in the Technical Notes at the end of the report.

The analysis proceeds by exploring whether levels of teacher commitment are statistically associated with these three sets of variables by using the statistical method known as multiple regression. The objective of this method is to estimate a mathematical equation, known as a model, indicating the relative association of each of these variables with teacher commitment. That is, the statistical association of each variable with commitment is individually determined, while the other variables are held constant, or, in other words, controlled.

Over the past two decades, there has been a growing debate concerning the most appropriate multiple regression method for modeling multilevel data, such as those used here, that are measured at more than one level (e.g., Bidwell and Kasarda 1980; Pfeffer 1982; Rowan et al. 1991; Arnold 1992). Accurately predicting an outcome, such as commitment, for members of an organization, such as teachers, while taking into account the characteristics of both the teachers and the organization, is a complex statistical task. Conventional multiple regression techniques, such as ordinary least squares (OLS), operate at one level of analysis and, hence, cannot properly model an outcome that is a product of factors at more than one level. (For a clear discussion of multilevel analysis, see Arnold 1992.) Recently, a number of statistical techniques have been developed to be used specifically for modeling multilevel data. This analysis uses one such technique, known as Hierarchical Linear Modeling (HLM) (Bryk and Raudenbush 1992).

HLM has the advantage of allowing the analysis to simultaneously model the relationships between both individual teachers' demographic characteristics and their own commitment and between those of the characteristics of schools and the average commitment of the teachers in those schools. That is, HLM does not assume that schools are entirely uniform entities, nor does it assume that they are entirely nonuniform entities. In this report, HLM allows the analysis to account for variation in teacher commitment, both between teachers within schools and between teaching staffs across schools.

Figure 1— Measures used in the multilevel regression analysis

- **Teacher Commitment**: on a scale of 1 = certainly would not become a teacher to 5 = certainly would become a teacher, teachers' responses to the question—"If you could go back to your college days and start over again, would you become a teacher or not?"

Teacher-Level Variables

- **Male**: a dichotomous variable where 0 = female and 1 = male
- **MA Degree or Beyond**: a dichotomous variable where 0 = BA degree or less and 1 = MA degree or beyond
- **Teaching Experience**: total years of K–12 teaching experience, both full-time and part-time
- **White**: a dichotomous variable where 0 = minority (black, Hispanic, American Indian, Alaska Native, Asian, Pacific Islander) and 1 = white

School-Level Variables

School Characteristics

- **% Minority Enrollment**: percentage of faculty that are minority (black, Hispanic, American Indian, Alaska Native, Asian, Pacific Islander)
- **Secondary Level**: a dichotomous variable where 0 = elementary/combined and 1 = secondary
- **Elementary Level**: a dichotomous variable where 0 = secondary/combined and 1 = elementary
- **Urban**: a dichotomous variable where 0 = rural/small town or urban fringe/large town and 1 = central city
- **Suburban**: a dichotomous variable where 0 = rural/small town or central city and 1 = urban fringe/large town
- **School Size**: student enrollment of school
- **Private**: a dichotomous variable where 0 = public and 1 = private

For public schools:

- **District Size**: student enrollment of school district
- **% Poverty Enrollment**: percentage of students receiving publicly funded free or reduced-price lunches

For private schools:

- **Other Religious**: a dichotomous variable for school orientation where 0 = Catholic or nonsectarian and 1 = other religious
- **Nonsectarian**: a dichotomous variable for school orientation where 0 = other religious or Catholic and 1 = nonsectarian

For more details on the definition and construction of these measures, see the Technical Notes.

Figure 1— Measures used in the multilevel regression analysis (continued)

Professional Characteristics

Credentials

- **Professional Hiring Requirements**: on a scale of 0–4, the sum of four possible criteria required of candidates for teaching positions: (1) full standard state certification for the field to be taught, (2) graduation from a state-approved teacher education program, (3) college major or minor in the field to be taught, and (4) passage of a national, state, or local teachers' examination (a local district test of basic skills or subject knowledge, a state test of basic skills, a state test of subject knowledge, or the National Teachers Examination)

Induction

- **Mentor/Master Program**: a dichotomous variable where 1 = availability of "formal program to help beginning teachers (such as mentor/master teacher programs)," as reported by school administrators
- **Effectiveness of Assistance**: on a scale of 1 = strongly disagree to 4 = strongly agree, the school mean of amount of agreement of all teachers with the statement "this school is effective in assisting new teachers" in each of the following matters: student discipline, instructional methods, curriculum, and adjusting to the school environment

Professional Development

- **Continuing Education Support**: a dichotomous variable where 1 = reimbursement available for teachers' tuition and course fees for additional college coursework, as reported by school administrators
- **Participation in Professional Organization**: on a scale of 0 = none, 1 = less than once a year, 2 = once or twice a year, 3 = three or more times a year, the school mean of teachers' reports of their participation in workshops, seminars, or conferences sponsored by a professional organization

Authority

- **Teacher Autonomy**: on a scale of 1 = none to 6 = complete control, the school mean of teachers' reports of individual teacher control in their classrooms over 6 areas of planning and teaching: course texts, course content, teaching techniques, evaluating students, disciplining students, determining homework
- **Faculty Influence**: on a scale of 1 = none to 6 = a great deal, the school mean of teachers' reports of collective faculty influence over school policy in four areas: discipline, faculty in-service programs, grouping students in classes by ability, establishing curriculum

Compensation

- **Maximum Salary**: normal yearly base salary for teacher at highest possible step on salary schedule, or if no salary schedule, the highest salary offered, as reported by school administrators. This measure excludes private school teachers whose effort is contributed as a free service.

Table 1— Means of measures used in the multilevel regression analysis, by school sector

	All Schools	Public Schools	Private Schools
Teacher Commitment (scale: 1–5)	3.8	3.8	4.2
Teacher Characteristics			
% Male	28%	28%	23%
% MA or beyond	46%	47%	32%
Teaching experience	14.8 yrs.	15.1 yrs.	12.3 yrs.
% White	87%	87%	92%
School Characteristics			
% Minority enrollment	25%	26%	21%
% Secondary level	22%	25%	11%
% Elementary level	69%	71%	65%
% Urban	27%	23%	40%
% Suburban	27%	26%	32%
School size	442	503	210
% Private	21%	--	--
Public district size	--	34,416	--
% Poverty enrollment	--	33.6%	--
% Other religious private	--	--	43%
% Nonsectarian private	--	--	16%
Professional Characteristics			
Prof. hiring requirements (scale: 0–4)	2.6	2.8	1.6
% with mentor/master program	60%	67%	33%
Effectiveness of assistance (scale: 1–4)	3.1	3.0	3.3
% with cont. education	37%	36%	42%
Participation in professional org. (scale: 1–3)	1.3	1.4	1.2
Teacher autonomy (scale: 1–6)	5.0	5.0	5.2
Faculty influence (scale: 1–6)	3.7	3.7	4.2
Maximum salary ($)	$36,011	$39,293	$24,110

(--) not applicable

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990–91 Schools and Staffing Survey (Teacher Demand and Shortage, School, and Teacher Questionnaires).

Results

This section displays and discusses the results of the HLM multilevel multiple regression analysis. In table 2, the numbers displayed for each variable, known as coefficients, represent estimates of the association of each variable with commitment, after taking account of the other variables. Regression coefficients are presented for three different models of the relationship between the independent variables and teacher commitment: for all schools, for public schools only, and for private schools only. Each model includes two levels of analysis: a within-school level that examines the relationship between the characteristics of individual teachers in each school and their own commitment scores; and a between-schools analysis that examines the relationship between the general characteristics of each school, the professional characteristics of each school, and the mean commitment score of each school's teachers. The "proportion of school-level variance explained," noted at the bottom of the table, refers to the school-level variance accounted for by both the school-level and the teacher-level characteristics. It should be noted that the relationships depicted and discussed between the variables and commitment do not imply causality, but indicate associations.

All Schools

Among the overall population of elementary and secondary school teachers, all four of the individual teacher demographic characteristics examined were associated with commitment. That is, the data show that there were differences among different types of teachers in how committed they felt to their career choice of teaching. Male teachers reported slightly less commitment than did female teachers. Teachers with graduate degrees reported slightly less commitment than did teachers with bachelor's degrees or less. Minority teachers reported slightly less commitment than did white teachers. Teachers with more teaching experience reported slightly less commitment than did teachers with less experience. It should be noted, however, that in each case, the relationship is statistically significant, but is weak.

Table 2— Multilevel regression analysis of the relationship between teacher professionalization and teacher commitment, by school sector

	All Schools		Public Schools		Private Schools	
	(b)	(se)	(b)	(se)	(b)	(se)
Teacher Characteristics						
Male	–.03*	.007	–.03*	.01	–.09*	.01
MA or beyond	–.02*	.006	–.03*	.007	–.0004	.07
Teaching experience	–.001*	.0003	–.002*	.0004	.001	.001
White	.03*	.006	.04*	.007	.01	.02
School Characteristics						
% Minority enrollment	.0002	.0004	.001	.001	.0005	.001
Secondary level	–.13*	.042	–.04	.063	–.14	.07
Elementary level	.01	.038	.11	.059	–.1*	.05
Urban	–.08*	.026	–.07*	.03	–.01	.05
Suburban	–.08*	.025	–.11*	.038	–.03	.05
School size (x1,000)	–.02	.026	.02	.028	–.16	.09
Private	.30*	.036	--	--	--	--
Public district size (x10,000)	--	--	–.000	.000	--	--
Poverty enrollment	--	--	.001	.001	--	--
Other religious private	--	--	--	--	.07	.05
Nonsectarian private	--	--	--	--	–.08	.062
Professional Characteristics						
Prof. hiring requirements	.008	.008	.004	.01	.02	.015
Mentor/master program	–.05*	.02	–.05*	.023	.03	.039
Effectiveness of assistance	.26*	.018	.24*	.025	.25*	.038
Cont. education support	.01	.02	.02	.021	–.04	.038
Participation in prof. org.	.01	.014	.01	.018	.05	.026
Teacher autonomy	.13*	.021	.15*	.024	.07	.04
Faculty influence	.11*	.015	.13*	.02	.06*	.026
Maximum salary (x10,000)	.04*	.01	.08*	.02	–.03	.03
N	10,186		7,944		2,184	
Proportion of school-level variance explained	.23		.20		.19	

(* p<.05)

(--) not applicable

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990–91 Schools and Staffing Survey (Teacher Demand and Shortage, School, and Teacher Questionnaires).

Moreover, some general characteristics of schools were related to the degree of teacher commitment in schools, and some were not. After controlling for other factors, neither the racial composition of a school's student population nor the school's size were related to the average level of teacher commitment. That is, differences in the average commitment of teaching staffs across the overall population of schools were not related to these characteristics of schools. But, some other school factors were associated with commitment. For example, teachers in both urban and suburban schools had slightly less commitment on average than did teachers in rural schools. Moreover, secondary schools, although not elementary schools, had less average commitment than did combined schools. The strongest school effect was sector; other factors held equal, teachers in private schools reported more commitment than those in public schools.

As expected by the literature on teacher professionalization, the association between all of the types of teacher professionalization and teacher commitment were in a positive direction, with only one exception—the provision of mentoring programs for beginning teachers. But, for only four of the types of professionalization was the positive association of statistical significance: (1) Schools that offered higher end-of-career salaries to teachers had higher levels of teacher commitment than did schools with lower end-of-career salaries. Both types of teacher authority were positively associated with increased teacher commitment. That is, (2) increases in the reported influence collectively wielded by faculties over school policymaking and (3) increases in the reported individual autonomy exercised by teachers in their classrooms were both associated with increases in teacher commitment. Finally, (4) the reported effectiveness of assistance provided to new teachers was related to commitment; schools with more effective assistance to newcomers also had higher levels of teacher commitment.

Public Schools

The middle set of columns in table 2 displays the results of the analysis for public schools alone. These results show that the factors that explain the differences in teacher commitment among public schools were, for the most part, similar to those for all schools.

Among public school teachers, males reported slightly less commitment than did females, white teachers reported slightly more commitment than did minority teachers, more experienced teachers reported less commitment than less experienced teachers, and teachers with graduate degrees reported less commitment than those without such degrees.

Among public schools, after controlling for the above teacher differences, differences in the average teacher commitment were not statistically significant in schools with more minority students, in schools with more poverty-level students, in larger schools or schools in larger school districts, and among school levels. There were, however, differences according to the degree of urbanicity of schools. Both urban and suburban schools had less average commitment than did rural schools.

As before, four aspects of teacher professionalization stood out. Among public schools, those with higher end-of-career teacher salaries, with higher levels of reported teacher autonomy and reported faculty influence, and with higher levels of reported effectiveness of assistance for newcomers all had higher levels of reported teacher commitment.

Private Schools

The last set of columns in table 2 displays the results of the analysis for private schools alone. These results show that many of the factors that explain differences in teacher commitment among private schools were similar to those for public schools.

Among private school teachers, female teachers reported slightly more commitment than did male teachers. There were not, however, statistically significant differences between teachers with more teaching experience and those with less experience, between teachers with graduate degrees and those without, and between white and minority teachers.

Among private schools, after controlling for the above teacher differences, there were some differences according to the level of the school. Elementary private schools had slightly less teacher commitment, on average, than did combined schools. On the other hand, there were not statistically significant differences in average teacher commitment according to school size, the affiliation or orientation of the school, the racial composition of the school's student population, or the location of the school.

Two aspects of teacher professionalization accounted for differences in teacher commitment among private schools. As in the public sector, private schools with higher levels of reported effectiveness of assistance for newcomers had higher levels of reported teacher commitment. In addition, higher levels of reported faculty influence were associated with increases in commitment.

The final portion of this section of the report follows up the above multilevel regression analysis by presenting several figures designed to more concretely illustrate the actual levels of teacher commitment among different kinds of schools.

Figure 2 presents the percentages of schools with high teacher commitment for several basic school types.[2] Parallel to the regression analysis, there were distinct differences in teacher commitment between public and private schools: private schools were far more likely to have high levels of teacher commitment than public schools. Moreover, in both the public and private sectors, teachers in rural schools, on average, reported higher levels of commitment than did teachers in either suburban and urban schools. Among private schools, there were also some differences in the commitment of teachers between schools of different orientation; teachers in Catholic schools reported less commitment than did teachers in other religious schools.[3] Notably, among public schools, the differences between schools serving predominantly low-poverty and high-poverty student populations were not statistically significant.

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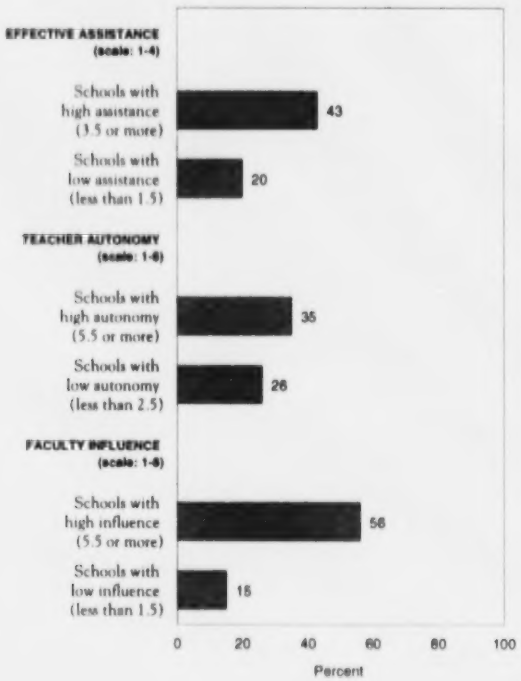
[2] Schools with "high" teacher commitment refer to those with a mean level of 4.5 or more on a scale of 1 to 5. See the Technical Notes for the definitions of "high" and "low" for the variables in figures 2 and 3. Note that the "middle" levels of poverty, assistance, autonomy, and influence are not shown in the figures.

[3] Note that private school differences in commitment according to both urbanicity and affiliation are no longer significant once other factors are controlled, as in the multiple regression analysis.

Figure 2— Percentage of schools with high teacher commitment, by selected school characteristics



NOTE: The middle category of poverty enrollment is not shown. High teacher commitment refers to schools with a mean level of 4.5 or more on a scale of 1 to 5.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990–91 Schools and Staffing Survey (School and Teacher Questionnaires).

Figure 3 illustrates the differences in teacher commitment according to the school levels of effective assistance, teacher autonomy, and faculty policymaking influence. Parallel to the regression analysis, these factors are clearly and strongly related to differences in commitment. For example, 56 percent of schools with high levels of faculty influence had high teacher commitment; in contrast, only 15 percent of schools with low faculty influence had high commitment. Likewise, 43 percent of schools with high effective assistance for new teachers had high commitment; in contrast, only 20 percent of schools with low effective assistance for new teachers had high teacher commitment. Finally, 35 percent of schools with high teacher autonomy had high commitment, while 26 percent of schools with low autonomy had high commitment.

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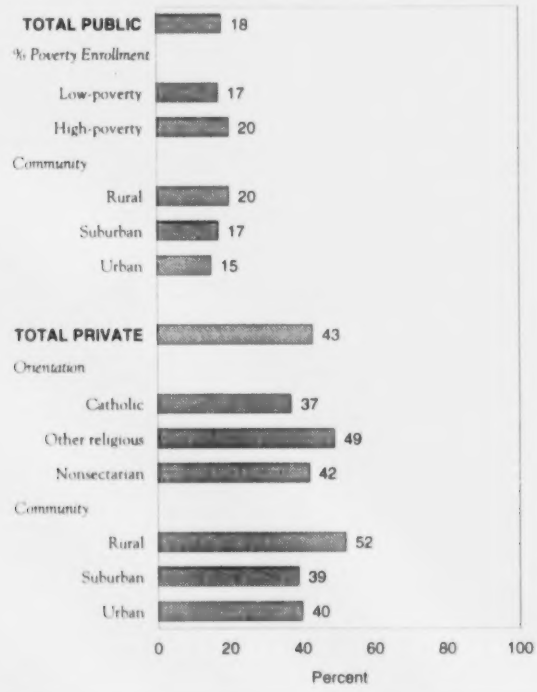
Figure 3— Percentage of public and private schools with high teacher commitment, by school levels of selected professional characteristics



NOTE: The middle categories of assistance, autonomy, and influence are not shown. High teacher commitment refers to schools with a mean level of 4.5 or more on a scale of 1 to 5.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990–91 Schools and Staffing Survey (School and Teacher Questionnaires).

Summary

Does the professionalization of teachers have a positive impact on the commitment of elementary and secondary teachers to their teaching careers? Do schools with more professional working conditions have higher levels of teacher commitment? This report has presented a multilevel analysis of the relationships between a number of traditional aspects of professionalization and teacher commitment, while controlling for a number of key characteristics of schools and teachers.

The results of this analysis show that for the overall population of elementary and secondary teachers and schools in the United States, there were distinct teacher-to-teacher and school-to-school differences in teacher commitment. For example, male teachers, teachers with graduate degrees, minority teachers, and teachers with more teaching experience all reported slightly less commitment than did other teachers.

Moreover, there were distinct school differences in the average level of commitment of teaching staffs. The strongest school effect was sector; other factors held equal, teachers in private schools reported more commitment than did those in public schools. Moreover, within the public sector, both urban and suburban schools had lower levels of average teacher commitment than did rural schools.

The heart of the analysis focused on the effects of professionalization, after controlling for the above teacher-to-teacher and school-to-school differences in teacher commitment levels. The results show that some aspects of professionalization were related to teacher commitment, and some were not. Four aspects of professionalization, in particular, stood out for their relationships to commitment: the reported amounts of teacher classroom autonomy; the reported amounts of faculty policymaking influence; the reported effectiveness of assistance for new teachers; and teachers' end-of-career salaries. Schools with higher levels of each of these characteristics had higher levels of teacher commitment, after controlling for the other factors.

It is important to interpret these results with some caution for several reasons. First, the relationships estimated between the range of variables and teacher commitment do not, of course, imply causality, but indicate associations. That is, the statistical models themselves do not determine whether the professionalization of teachers causes higher levels of commitment in teachers.

Second, although a number of the relationships are of statistical significance, none of the relationships can be described as strong. Moreover, in each model, only a portion of the variance in average reported teacher commitment is accounted for by the variables examined. This is to be expected. The objective of the analysis was not to provide a comprehensive

explanation of teacher commitment. There are many factors affecting teachers' engagement and commitment, of which only a sample are measured here.

Third, the questionnaire item used as a dependent variable in the analysis—"If you could go back to your college days and start over again, would you become a teacher or not?"—represents only one aspect of the multifaceted concept of commitment. The factors that were related to this particular aspect of commitment may not be related to other equally important aspects of teacher commitment.

Fourth, teacher commitment is also only one of many important outcomes in schools. The factors that were related to commitment may not be related to other equally important teacher and school outcomes. Likewise, a lack of relationship between other characteristics of professionalization, such as more stringent hiring requirements, and commitment does not mean that these kinds of professionalization are not important, nor that they are inconsequential for teachers or schools.

Although commitment may be only one of the many important outcomes in schools, it is widely recognized as an important aspect of teacher behavior, quality, and performance and is one that is expected to be directly affected by teacher professionalization. The primary contribution of this analysis is to show that teacher commitment distinctly varies across different types of schools and to highlight those particular characteristics and aspects of professionalization in schools that show a strong association with commitment.

Implications

These findings suggest several important implications for contemporary education research and policy.

The Problems and Prospects of Beginning Teachers

The problems confronting new teachers in their jobs are of great interest in current education research. Researchers have consistently shown that new teachers leave the occupation at very high rates. As a result, policymakers have advocated a range of reform efforts, such as mentoring, apprenticeship, and induction programs, designed to aid new teachers and cut down on their high attrition rates (e.g., Sclan 1991; Murnane et al. 1991). But, the importance attached to improved induction for new teachers has not, as of yet, resulted in the prevalence of effective programs in schools. Another NCES report on this topic (Ingersoll 1996a) showed that although a majority of schools offered formal mentoring programs for beginning teachers, in only a minority of schools did teaching staffs strongly agree that effective assistance was provided for new teachers, regardless of the program or source. Moreover, the data indicated that whether a school had a mentor program or not little affected the distribution of teachers' reports of the effectiveness of assistance. In either case, in only about 20 percent of schools did the staff strongly agree that assistance was effective. The results of the present analysis substantiate, moreover, that a school having a program to assist beginning teachers is less important for teacher commitment than the quality of help reportedly provided to newcomers. That is, simply offering formal mentoring programs did not appear to improve the commitment of teachers. Only if teaching staffs reported that new teachers were effectively assisted in matters of discipline, instruction, and adjustment to the school environment did the commitment of teachers appear to improve. This suggests the importance of conducting further research on what distinguishes effective from ineffective induction and assistance programs.

Professional Development

There has also been a recent upsurge in recognition of the importance of professional development to foster the continuing engagement, enthusiasm, effectiveness, and retention of teachers. Indeed, as mentioned earlier, the national education goals specifically call for increased support for the professional development of the teaching workforce in the United states (National Education Goals Panel 1995).

The results of this analysis show that *neither* of two traditional forms of professional development—funding for continuing education and teaching staff participation in seminars sponsored by professional organizations—have a positive effect on reported teacher

commitment. It is unclear what this means for professional development in general. Possibly these kinds of programs are not effective, at least for raising the commitment of teachers, but other kinds of programs may be. Or possibly the measures used here do not effectively assess the quality of programs, and like mentoring for new teachers, having a program is less important than the quality of developmental assistance. Further research is also warranted on what types of professional development exist and which are more effective.[4]

Power, Authority, and Decisionmaking in Schools

The distribution of power, authority, and control in schools is one of the most important issues in contemporary education research and policy. Indeed, this issue lies at the crux of many current reforms—teacher empowerment, site-based management, and related forms of school decentralization. But, although the importance of the distribution of power in school systems has become increasingly recognized among both education researchers and policymakers, it is a subject marked by substantial disagreement and confusion. (For discussions of this topic and debate, see, for example, Johnson 1990; Shedd and Bacharach 1991; Conley and Cooper 1991; McNeil 1988; Ingersoll 1994.)

Disagreement surrounds the degree to which schools ought to be centralized or decentralized. Some reformers, for example, have argued that too much decentralization in school systems is a prime cause of incoherence and disorder in the operation of schools, and, ultimately, poor performance on the part of staff and students. In this view, the education system would greatly benefit by increasing the centralized control and accountability of school programs and staff. Others, however, argue precisely the opposite—that too much centralization in school systems is a prime cause of dissatisfaction, disruption, and, ultimately, poor performance on the part of staff and students inside schools. In this view, the education system would greatly benefit by delegating decisionmaking downwards to the local and school levels.

This debate, moreover, suffers from a great deal of confusion because different researchers and policy analysts concerned with power in school systems have at different times focused on different groups, on different levels of analysis, and on different aspects of power. So, for instance, some discussions of decentralization focus on parent and local community input into school policy, while others focus on teacher and school staff empowerment. Some analysts are concerned with an interorganizational level of analysis and focus on the interface between state or district agencies and school-level staff, while others are concerned with an intraorganizational level and focus on the interface between teachers and administrators within schools. In addition, different researchers have focused on different kinds, forms, and aspects of power. Some, for instance, are concerned with the mechanisms and degree of organizational control of teachers and their work, while others are interested in the degree of professional authority collectively exercised by school faculty. Even others focus on the effects of how much autonomy teachers exercise in their individual classrooms. Given this variation in emphases, it is not surprising that many have come to different conclusions as to the distribution and effects of power in schools. Resolution of the debate has, moreover, suffered

[4] In this regard, NCES has recently sponsored a project using national data to examine different forms of professional development and their relationships to teaching quality and student learning (Mullens 1996).

from a shortage of empirical work devoted to specifying and examining which kinds and aspects of power have what effects on which outcomes in schools and why.

Another NCES report on this topic (Ingersoll 1996a) shows that although much importance has been attached to teacher authority, this has not, as of yet, resulted in the prevalence of high levels of teacher empowerment in schools. The results showed, for example, that in few schools did principals report their faculties to have as much decisionmaking authority and influence over several key educational issues as they themselves had.

This analysis provides an empirical examination of the effects of two distinct, but often confounded, forms of teacher authority—collective faculty policy influence and individual teacher classroom autonomy. The results show that both of these are related to improvements in teacher commitment in schools—hence providing empirical support for those advocating the benefits of increased teacher empowerment. Moreover, these results are also consistent with other recent research using SASS data showing that increases in the authority of teachers are among the strongest predictors of decreased rates of teacher turnover (Ingersoll 1995) and reduced school conflict (Ingersoll 1996b).

Comparing Public and Private Schools

Over the past decade, there has been an upsurge of interest among both education researchers and policymakers in comparing public and private elementary and secondary schools in the United States. Numerous researchers, for instance, have sought to carefully isolate key differences between public and private schools and to explore what impact these differences have on student outcomes (e.g., Coleman and Hoffer 1987; Bryk et al. 1994; Chubb and Moe 1990). The primary emphasis of much of this research has been to separate out the effects of schools, of student characteristics, and of family background on student performance. Although highly contested, many have come to the conclusion that, in important ways, private schools are distinctly different than public schools and, in general, are better places for student growth and learning.

Other NCES analyses (Ingersoll 1996a) showed that the teaching job in private schools was in many, but not all, ways less professionalized than in public schools. For example, public schools were more likely than private schools to use a full range of professional hiring requirements (e.g., certification in area of specialization, substantive training in area of specialization, completion of accredited training program, passage of examination). Public school teachers did less teaching out of their fields of training. Public schools more often provided a full range of paid benefits (medical, dental, life insurance, retirement). Finally, starting and end-of-career teachers' salaries were higher for public than for private school teachers.

On the other hand, teachers in private schools were more likely to report that effective assistance to new teachers was provided; moreover, private school principals more often reported their faculties to have substantial decisionmaking influence over key educational issues. Hence, it appears that although private schools were less professionalized in many ways, they had higher levels of some of those very characteristics of professionalization that have the greatest effect on teacher commitment. The differences in these characteristics could

possibly account for the higher levels of commitment in private schools than in public schools. On the other hand, other research with SASS data has shown that even with higher levels of teacher commitment, private schools still have substantially higher levels of teacher turnover (Ingersoll 1995). Clearly, the differences in public and private schools and teachers are issues that warrant further research.

Technical Notes

Part 1—The Schools and Staffing Survey

The primary data source for this report is the 1990–91 Schools and Staffing Survey (SASS), a nationally representative survey of teachers, principals, and schools conducted by the U.S. Department of Education's National Center for Education Statistics (NCES). The U.S. Census Bureau collected the SASS data for NCES in 1991 using a mail survey with telephone followup. The objective of SASS was to obtain information on the staffing, occupational, and organizational characteristics of schools in the United States.

Sample Selection[5]

Schools were the primary sampling unit for SASS. Each selected school received a school questionnaire and an administrator questionnaire. Next, a sample of teachers was selected within each school, and each received a teacher questionnaire. A Teacher Demand and Shortage (TDS) questionnaire was sent to the local education agency (LEA) associated with each selected public school. Also, an additional sample of public school districts not associated with the sampled schools received the TDS questionnaire. The private school questionnaire included TDS questions for the school. The sample for the SASS conducted during the 1990–91 school year included 12,856 schools and administrators, 65,217 teachers, and 5,515 local education agencies. The response rates are discussed below.

SASS was designed to provide national estimates for public and private schools; state estimates for public schools; state elementary, state secondary, and national combined estimates for public schools; affiliation- and grade-level estimates for private schools; estimates of change from 1988 to 1991 in school-level characteristics; and national estimates for schools with greater than 25 percent Indian enrollment. The teacher survey was designed to support comparisons between new and experienced teachers. Comparisons between bilingual and nonbilingual teachers are possible at the national level.

Selection of Schools

The public school sample of 9,586 schools was selected primarily from the 1988–89 school year Common Core of Data (CCD) file. The CCD is based on survey data collected annually by NCES from all state education agencies and is believed to be the most complete list of public schools available. The frame includes regular public schools, Department of Defense

[5] For a detailed description of the sample design of the 1990–91 SASS, see Kaufman and Huang (1993).

operated military base schools, and nonregular schools such as special education, vocational, and alternative schools.

The private school sample of 3,270 schools was selected from two sampling frames, a list frame and an area frame. The 1989–90 Private School Survey (PSS) list frame was based on the 1989 Quality of Education Data (QED) private school list, updated with 20 private school association lists provided to the Census Bureau in the spring of 1989.

To improve private school coverage, an area frame of schools was developed consisting of 123 sampling units (PSUs) selected with probability proportional to the square root of the PSU population. Within each PSU, a telephone search was conducted to find all in-scope private schools. Sources included yellow pages, religious institutions (except for Roman Catholic religious institutions, because each Catholic diocese is contacted annually when the QED list is updated), local education agencies, chambers of commerce, and local government offices. PSU schools not on the QED file nor the lists from private school associations were listed in the area school frame. From the frame, additional schools were eligible to be selected for the SASS private school sample.

The private school sample was designed to support estimates at the national and affiliation levels. The affiliation groups for private schools were determined by the school's orientation or affiliation group listed on the 1988–89 Private Schools Survey (the list frame).

Selection of LEAs

All LEAs that had at least one school selected for the school sample were included in the LEA sample for the TDS Survey. Each Bureau of Indian Affairs and Department of Defense school was defined to be an LEA. Some LEAs did not have schools, but hired teachers who taught in schools in other LEAs. To ensure representation of these teachers, a sample of 135 LEAs without eligible schools was selected. Only 14 of the 135 were actually in scope (that is, were an operating public school agency that reported hiring teachers). All LEAs in Delaware, Nevada, and West Virginia were included to reduce high standard errors in these states. The total LEA sample was 5,515. (LEAs without schools were not included in this analysis.)

Selection of Teachers

All 56,051 public and 9,166 private school teachers in the teacher samples were selected from the sampled public and private schools. The average number of teachers selected per school was 3.49, 6.98, and 5.23 teachers for public elementary, secondary, and combined schools, respectively, and 3.78, 4.72, and 2.83 teachers for private elementary, secondary, and combined schools, respectively.

Data Collection

The data were collected for NCES by the United States Bureau of the Census. Questionnaires were mailed to school districts and administrators in December 1990 and to schools and teachers in January and February 1991.[6] Six weeks later, a second questionnaire was sent to

[6] Copies of the questionnaires may be obtained by writing to the address given at the end of this report.

each nonrespondent. A telephone follow-up of nonrespondents was conducted between March and June.

Weighting

Weights of the sample units were developed to produce national and state estimates for public schools, teachers, administrators, and LEAs. The private-sector data were weighted to produce national estimates and affiliation group estimates. The basic weights were the inverse of the probability of selection, and were adjusted for nonresponse and also to adjust the sample totals (based on responding, nonresponding, and out of scope cases) to the frame totals in order to reduce sampling variability.

Response Rates and Imputation

The final weighted questionnaire response rates were as follows:

	Public	Private
Teacher Demand and Shortage	93.5	--
Administrator	96.7	90.0
School	95.3	83.9
Teacher*	90.3	84.3

(--) not applicable

*The response rates for public school teachers do not include the 5 percent of the public schools that did not provide teacher lists, and the response rates for private school teachers do not include the 11 percent of the private schools that did not provide teacher lists. The effective response rate for public schools was 85.8 percent and for private schools, 75.9 percent.

Values were imputed for items with missing data by: (1) using data from other items on the questionnaire or a related component of the SASS (a school record to impute district data, for example); (2) extracting data from the sample file, such as the CCD or PSS; or (3) extracting data from a respondent with similar characteristics.[7]

Standard Errors

The data in this report are based on samples and, hence, are subject to sampling variability. In order to make proper inferences about the larger population which the samples represent, the accuracy of all statistics and estimates in this report were checked. All comparisons discussed in the text were tested for statistical significance using the student's t statistic at an alpha level of .05. Whenever comparisons were multiple, the Bonferroni procedure was used to adjust the alpha level for the t tests.

Standard errors were calculated by the HLM software program to indicate the accuracy of each estimate in the regression tables. If all possible samples of the same size were surveyed under

[7] For a detailed description of the imputation procedures in the 1990–91 SASS, see Kaufman and Huang (1993), pp. 60–87.

the same conditions, an interval of 1.96 standard error units below to 1.96 standard error units above a particular statistic would include the universe value in approximately 95 percent of the cases. Note, however, that the standard errors do not take into account the effect of biases due to item nonresponse, measurement error, data processing error, or other possible systematic error.

Measures of School Characteristics

Poverty Enrollment of School: The measure of poverty used in the analysis is the proportion of a school's student population that received the publicly funded free or reduced-price lunch program. The proportion of free-lunch recipients is a standard measure of poverty level in school populations because almost all public schools participate in the program. But, it must be interpreted with some caution. The number of children reported to be recipients may be an underestimate, because not all children who are eligible may identify themselves as such (especially at the secondary level). Note that this measure is not available for private schools.

Urban: a large central city (a central city of a Standard Metropolitan Statistical Area—SMSA—with population greater than or equal to 400,000 or a population density greater than or equal to 6,000 per square mile, or a mid-size central city (a central city of an SMSA, but not designated as a large central city).

Suburban: Urban fringe of a large or mid-size city (a place within an SMSA of a large or mid-size central city and defined as urban by the U.S. Bureau of the Census) or a large town (a place not within an SMSA, but with a population greater than or equal to 25,000 and defined as urban by the U.S. Bureau of the Census).

Rural/Small Town: Rural area (a place with a population of less than 2,500 and defined as rural by the U.S. Bureau of the Census) or a small town (a place not within an SMSA, with a population of less than 25,000 but greater than or equal to 2,500, and defined as urban by the U.S. Bureau of the Census).

SASS Questionnaire Items used in the Measures of Teacher Professionalization

Credentials

- **Professional Hiring Requirements:**

  TDS Questionnaire (question # 23) and Private School Questionnaire (question # 58)
  Items: DISTEST, STABASIC, STASUBJ, NTEPASS, FULLCERT, TEACHED, MAJORFLD.

Induction

- **Mentor/Master Program:**

  Public School Questionnaire (question # 35) and Private School Questionnaire (question # 55)
  Item: MENTOR.

- **Effectiveness of Assistance:**

  Public and Private Teacher Questionnaires (question # 37)
  Items: TSC237 - TSC240.

Professional Development

- **Continuing Education Support:**

  TDS Questionnaire (question # 13) and Private School Questionnaire (question # 53)
  Item: TUITION.

Participation in Professional Organization Activities

- Public and Private Teacher Questionnaires (question # 27)
  Items: TSC108, TSC109

Authority

- **Teacher Autonomy:**

  Public and Private Teacher Questionnaires (question # 40)
  Items: TSC248 - TSC253.

- **Faculty Influence** :

  Public and Private Teacher Questionnaires
  (question # 39)
  Items: TSC244 - TSC247.

Compensation

- **Maximum Salary**:

  TDS Questionnaire (questions # 15-17) and
  Private School Questionnaire (questions # 46-48)
  Items: SALSCHED, HIGHSAL, MAXSALRY.

Measures of Effective Assistance, Participation in Organizations, Teacher Autonomy, and Faculty Influence

In the analysis, four school-level measures of teacher professionalization are based on the reports of individual teachers: the effectiveness of assistance provided to new teachers; the extent of participation of teaching staffs in professional activities; the extent of influence collectively wielded by faculties over school policymaking; and the degree of individual autonomy exercised by teachers over planning and teaching within their classrooms.

In these four measures, teacher-respondents are treated as informants of workplace and organizational conditions in their schools. In essence, these measures assess the characteristics of schools indirectly, by aggregating members' perceptions of these structures. Use of employee respondent perceptions to construct such variables is standard practice in both research on school organization and in research on organizations in general (e.g., Pallas 1988; Lee et al. 1991; Rowan et al. 1991; Pfeffer 1982). Indeed, the argument is often made that members and employees are in the best position to know what these conditions are. Nevertheless, there is reason to treat these measures with some caution.

Because such data represent members' perceptions of school conditions, these responses are, by definition, subjective attributions. It is reasonable to expect that some individual's reports could be inaccurate because of attribution bias. For example, highly satisfied individuals could both overestimate their commitment and overestimate the degree of professionalization in their schools. Alternatively, highly disgruntled individuals could do the opposite. What might appear as a relationship between professionalization and commitment could actually be a spurious effect of the respondent's bias.

In a series of background analyses, we explored whether this may be the case by also examining the associations between individual teacher commitment and their own scores for each of these four professional characteristics. That is, we estimated both level-1 and level-2 HLM models which included teacher-level measures of effective assistance, participation in organizations, teacher autonomy, and faculty influence. In all cases, the effects of these teacher-level predictors were smaller than those of school-level versions of the same predictors. This suggested that the attribution bias described above may not be a problem in this analysis. It also provided justification for the use of only the school-level measures of professionalization—which is consistent with the theoretical focus of the study.

In a series of other background analyses, we also explored the use of a second version of the measure of faculty influence—one based on school principals' reports. In the Administrator Questionnaire, principals were asked to answer two of the same questions asked of teachers: faculty influence over school policy in two areas: discipline and establishing curriculum. Principals were also asked to report these levels for several other groups (state departments of education, school boards, parent associations) in addition to themselves. The data indicate that principals and teachers in the same schools often did not agree as to faculty influence—principals often reported that faculty had more influence than teachers did of themselves. Our analyses suggested that although the principals' reports were useful to compare the relative influence of the different groups, principals' reports were less valid and less reliable than those of teachers for faculty influence. For instance, teachers' mean reports

of faculty influence were strongly related to principals' reports of actual teacher turnover, while principals' reports of faculty influence showed no relationship.[8] Hence, in this analysis, we used teachers' reports of faculty influence.

Measures of Teacher Commitment, Poverty, and Professionalization in Figures 2 and 3

Teacher commitment is defined as "high" if the rounded mean school score was greater than or equal to 5 on a scale of 1 to 5.

% Poverty Enrollment is defined as "high" if the percentage of students in each school receiving publicly funded free or reduced-price lunches was 50 percent or more.
% Poverty Enrollment is defined as "low" if the percentage of students in each school receiving publicly funded free or reduced-price lunches was less than 15 percent.

Faculty influence is defined as "high" if the rounded mean school score was greater than or equal to 6 on a scale of 1 to 6.
Faculty influence is defined as "low" if the rounded mean school score was less than or equal to 1 on a scale of 1 to 6.

Effective assistance is defined as "high" if the rounded mean school score was greater than or equal to 4 on a scale of 1 to 4.
Effective assistance is defined as "low" if the rounded mean school score was less than or equal to 1 on a scale of 1 to 4.

Teacher autonomy is defined as "high" if the rounded mean school score was greater than or equal to 6 on a scale of 1 to 6.
Teacher autonomy is defined as "low" if the rounded mean school score was less than or equal to 2 on a scale of 1 to 6.

[8] For detailed analyses of teacher influence and autonomy using SASS data, see Ingersoll (1994, 1996b). For an analysis of teacher turnover using SASS data, see Ingersoll (1995).

Part 2—The HLM Analysis

Models

Summary of the models specified (in equation format):

All Schools

Level-1 Model

$$Y = B0 + B1*(MALE) + B2*(MASTERS) + B3*(EXPER) + B4*(WHITE) + R$$

Level-2 Model

$$B0 = G00 + G01*(\%MINENR) + G02*(SECOND) + G03*(ELEMENT) + G04*(URBAN) + G05*(SUBURBAN) + G06*(ENRK12UG) + G07*(PRIVATE) + G08*(MAX.SAL) + G09*(HIRE.REQ) + G010*(CONT.ED) + G011*(MENTOR) + G012*(T.AUTON) + G013*(PARTIC) + G014*(FAC.INFLU) + G015*(EFF.ASS) + U0$$
$$B1 = G10$$
$$B2 = G20$$
$$B3 = G30$$
$$B4 = G40$$

Public Schools

Level-1 Model

$$Y = B0 + B1*(MALE) + B2*(MASTERS) + B3*(EXPER) + B4*(WHITE) + R$$

Level-2 Model

$$B0 = G00 + G01*(\%MINENR) + G02*(SECOND) + G03*(ELEMENT) + G04*(URBAN) + G05*(SUBURBAN) + G06*(\%POVENR) + G07*(ENRK12UG) + G08*(DIST.SIZE) + G09*(MAX.SAL) + G010*(HIRE.REQ) + G011*(CONT.ED) + G012*(MENTOR) + G013*(T.AUTON) + G014*(PARTIC) + G015*(FAC.INFLU) + G016*(EFF.ASS) + U0$$
$$B1 = G10$$
$$B2 = G20$$
$$B3 = G30$$
$$B4 = G40$$

Private Schools

Level-1 Model

$$Y = B0 + B1*(MALE) + B2*(MASTERS) + B3*(EXPER) + B4*(WHITE) + R$$

Level-2 Model

B0 = G00 + G01*(%MINENR) + G02*(SECOND) + G03*(ELEMENT) + G04*(URBAN)
+ G05*(SUBURBAN) + G06*(ENRK12UG) + G07*(MAX.SAL) + G08*(HIRE.REQ)
+ G09*(CONT.ED) + G010*(MENTOR) + G011*(T.AUTON) + G012*(PARTIC)
+ G013*(FAC.INFLU) + G014*(EFF.ASS) + G015*(RELIG) + G016*(NON-SECT) + U0
B1 = G10
B2 = G20
B3 = G30
B4 = G40

The level-1 (within-school) model for each of the three sets of analyses (all schools, public schools, and private schools) investigated the changes in teacher commitment for each teacher in each school as a function of four of each teacher's background demographic characteristics (sex, education, teaching experience, and race) and random error. The B regression coefficients are structural relations occurring with each school that indicate how commitment in each school is distributed across the measured teacher characteristics.

The level-2 (between-school) models for each of the three sets of analyses (all schools, public schools, and private schools) investigated the changes in each school's mean teacher commitment, adjusted for teacher characteristics, as a function of a number of school characteristics and of the eight professional characteristics. The G regression coefficients represent structural relationships between school-level characteristics and the adjusted mean of teacher commitment for each school.

Because HLM models are more general than multiple regression models of the type estimated by ordinary least squares or probability weighted least squares, there are additional choices to make regarding the specification of the model. These include: (1) whether to treat the slope coefficients in the level-1 model as random or fixed and (2) whether to center teacher characteristics data around the mean value for teachers in each school.

The models estimated here treat the intercept in the level-1 model as random and comprised of two components: a component that is common to all teachers within a school and a component that is unique to each teacher. The common school component arises from unmeasured school-level characteristics. Each of the remaining terms in the level-1 model (years of teaching experience, sex, education, and minority status) are modeled as having fixed effects. This is how the slope coefficients in a standard linear regression analysis are modeled. They are fixed parameters to be estimated, as opposed to random parameters with means and standard deviations. For the model estimated here, there are no reasons to suspect that the effects of teacher characteristics have random effects on teacher commitment, and the available data is not extensive enough (in terms of teachers per school) to estimate such a complex model, so it is not pursued in this analysis.

The models estimated here also do not center the teacher characteristics data around the school means. That is, the coefficients for the teacher characteristics will not be expressed as deviations from the school mean but as deviations from the entire sample. If one centers around the mean value for teachers in each school, then one uses the variation in teacher characteristics within schools to estimate the effect of the teacher characteristics on

commitment. If one does not center, then both within- and between-school variation in teacher characteristics are used to estimate the effects of the teacher characteristics on commitment.

Because there are not compelling theoretical reasons to do so and also because of limitations in the within-school sample size, this analysis does not center the teacher data. Hence, in this analysis, the effects on commitment of, for instance, being a male or a female teacher do not refer to comparisons within each school but across the entire sample of teachers.

Variance Components of the Dependent Variable

Prior to estimating the models themselves, a first step in many HLM analyses is to partition the variance in the outcome of interest—the dependent variable—into its within-level and between-level components. This is done by estimating a base or unconditional model—one that includes no controls or other variables for either teachers or schools. In this case, the unconditional model indicates how much variation in teacher commitment lies between schools and how much lies within schools. It is useful to partition the total variance into these two components because the effects of the variables at each level of interest can only be evaluated on the portion of variance that actually lies at their level.

Table 3 provides information from the unconditional model on the background properties of the teacher commitment measure. It decomposes the variance in the teacher commitment measure into two components: within-school variance, or that which is unique to each teacher, and between-school variance or that which is common to all teachers within a school. The former represents actual teacher-to-teacher differences in commitment and also error in the measurement of commitment. The latter represents differences in the average commitment across schools. The proportion of the total variance that lies between schools is referred to as the intraclass correlation (intraclass correlation = (between-school variance) / (within-school variance + between-school variance)). This latter statistic indicates the extent to which teachers in particular schools agree as to their commitment. The school-level variance in commitment is the principal focus of this analysis. That is, the primary objective of the analysis is to examine the extent to which the professional characteristics of schools account for the between-school variance in teacher commitment, while controlling for effects of the general characteristics of schools and for the effects of the characteristics of teachers.

Table 3— HLM statistics for the teacher commitment measure, by school sector

	All Schools	Public Schools	Private Schools
Within-school variance	2.92	2.6	1.33
Between-school variance	.23	.23	.19
Intraclass correlation	.073	.082	.123

NOTE: intraclass correlation = (between-school variance) / (within-school variance + between-school variance)

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990–91 Schools and Staffing Survey (Teacher Questionnaire).

As indicated in table 3, only a small portion of the total variance in commitment actually lies between schools. This signals the existence of substantial heterogeneity in the responses of teachers to the questionnaire item on commitment, regardless of the conditions of the school in which they teach.

There are several reasons for such a large proportion of the diversity in teacher commitment to lie within schools. First, commitment is a subjective phenomenon and could vary according to the perceptions and inclinations of different individuals, regardless of the characteristics of their schools. Second, teachers in different departments and units within schools may have differing experiences and, hence, vary in their reports of commitment. Finally, such a measure is probably subject to substantial measurement error. That is, it is difficult to precisely measure commitment, especially with a survey questionnaire. For these reasons, it is to be expected that the within-school variance will be larger than the between-school variance, and the above ratio may underestimate the actual proportion of between-school variance.

It is important to acknowledge, however, that the above indicated school-level variance may not be an optimal amount. There is not enough between-school variance, for example, to disprove the null hypothesis that there are no school differences in teacher commitment, using a chi-square significance test and at a 95 percent level of confidence. (This does not, of course, disprove the alternative hypothesis that there *are* school-level effects and school differences). Although it is important to acknowledge these limits, in practice, HLM analyses are often confronted with limited amounts of between-school variance and despite these limits are able to identify important and statistically significant relationships (see, for example, Lee et al. 1991 or Lee and Smith 1995). As the analysis shows, there are, indeed, school differences in teacher commitment, and there are also significant relationships between school-level characteristics and commitment.

Comments and More Information

SASS and TFS data on CD-ROM with Electronic Codebooks, as well as user's manuals, are available (free single copies) from the National Data Resource Center at 703–845–3151 (fax: 703–820–7465).

Special requests for data tapes of the SASS and TFS data may be made to NCES at the address listed below.

Schools and Staffing Survey
Elementary and Secondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue, NW
Washington, D.C. 20208-5653

References

Abbott, A. (1988). *The System of Professions: An Essay on the Division of Expert Labor.* Chicago: University of Chicago Press.

Arnold, C. (1992). "Methods, Plainly Speaking: An Introduction to Hierarchical Linear Models." *Measurement and Evaluation in Counseling and Development, 25:* 58–90.

Bacharach, S. (1990). *Education Reform: Making Sense of it All.* Boston: Allyn and Bacon.

Baker, D., Han. M., and Keil, C.T. (1996). *How Different? How Similar?: Comparing Key Organizational Qualities of American Public and Private Secondary Schools.* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 96–322).

Bidwell, C. and Karsarda, J. (1980). "Conceptualizing and Measuring the Effects of School and Schooling." *American Journal of Education,* 89: 401–431.

Bidwell, C. and Quiroz, P. (1991). "Organizational Control in the High School Workplace: A Theoretical Argument." *Journal of Research on Adolescence, 1:* 211–229.

Bryk, A. and Raudenbush, S. (1992). *Hierarchical Linear Models: Applications and Data Analysis Methods.* Newbury Park, CA: Sage.

Bryk, A., Lee, V., and Smith, J. (1990). "High School Organization and its Effects on Teachers and Students: An Interpretive Summary of the Research." In Clune, W.H. and Witte, J.F. (Eds.) *Choice and Control in American Education, Volume 1: The Theory of Choice and Control in Education* (135–226). New York: Falmer Press.

Carnegie Forum on Education and the Economy. (1986). *A Nation Prepared: Teachers for the 21st Century.* New York: Carnegie Forum.

Chambers, J. (1996). *Patterns of Teacher Compensation.* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 95–829).

Choy, S., Bobbitt, S., Henke, R., Medrich, E., Horn, L., and Lieberman, J. (1993a). *America's Teachers: Profile of a Profession.* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 93–025).

Choy, S., Henke, R., Alt, M., Medrich, E., and Bobbitt, S. (1993b). *Schools and Staffing in the United States: A Statistical Profile, 1990–91*. Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 93–146).

Chubb, J.E. and Moe, T. (1990). *Politics, Markets and America's schools*. Washington, DC: Brookings Institute.

Coleman, J. and Hoffer, T. (1987). *Public and Private Schools: The Impact of Communities*. New York: Basic.

Collins, R. (1979). *The Credential Society*. New York: Academic Press.

Conley, S. and Cooper, B. (1991). *The School as a Work Environment: Implications for Reform*. Boston: Allyn and Bacon.

Darling-Hammond, L. (1984). *Beyond the Commission Reports: The Coming Crisis in Teaching*. Santa Monica, CA: Rand Corporation.

Darling-Hammond, L. (1995). *The Current Status of Teaching and Teacher Development in the United States*. Paper prepared for the National Commission on Teaching and America's Future.

Etzioni, A. (1969). (Ed.) *The Semi-Professions and Their Organizations: Teachers, Nurses and Social Workers*. New York: Free Press.

Friedson, E. (1986). *Professional Powers: A Study in the Institutionalization of Formal Knowledge*. Chicago: University of Chicago Press.

Gruber, K., Rohr, C., and Fondelier, S. (1993). *1990–91 Schools and Staffing Survey: Data File User's Manual Volumes I–III*. Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 93–441–I–III).

Hall, R. (1968). "Professionalization and Bureaucratization." *American Sociological Review*, 33: 92–104.

Holmes Group. (1986). *Tomorrow's Teachers*. East Lansing, MI: Holmes Group.

Hodson, R. and Sullivan, T. (1995). "Professions and Professionals." In XXX (Ed.) *The Social Organization of Work* (287–314). Belmont, CA: Wadsworth.

Hughes, E. (1965). "Professions." In K.Lynn (Ed.) and the editors of Daedalus. *The Professions in America* (1–14). Boston: Houghton Mifflin.

Ingersoll, R. (1994). "Organizational Control in Secondary Schools." *Harvard Educational Review*, 64: 150–172.

——. (1995). *Teacher Supply, Teacher Quality, and Teacher Turnover: 1990–91*. Washington, DC: National Center for Education Statistics (NCES 95–744).

——. (1996a). *The Status of Teaching as a Profession.* Washington, DC: National Center for Education Statistics (NCES 95–104).

——. (1996b). "Teachers' Decision-making Power and School Conflict." *Sociology of Education*, 69: 159–176.

Jabine, T. (1994). *A Quality Profile for SASS: Aspects of the Quality of Data in the Schools and Staffing Surveys.* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 94–340).

Johnson, S. (1990). *Teachers at Work.* New York: Basic Books.

Kaufman, S. and Huang, H. (1993). *1990–91 Schools and Staffing Survey: Sample Design and Estimation.* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 93–449).

Kozol, J. (1991). *Savage Inequalities.* New York: Harper-Collins.

Larson, M. (1977). *The Rise of Professionalism: A Sociological Analysis.* Berkeley, CA: University of California Press.

Lee, V., Dedrick, R., and Smith, J. (1991). "The Effect of the Social Organization of Schools on Teachers' Efficacy and Satisfaction." *Sociology of Education*, 64: 190–208.

Lee, V., and Smith, J. (1995). "The Effects of High School Restructuring and Size on Early Gains in Achievement and Engagement." *Sociology of Education*, 68: 241–270.

Lieberman, A. (1988). *Building a Professional Culture in Schools.* New York: Teacher's College Press.

Little, J. (1990). "Conditions of Professional Development in Secondary Schools." In M. McLaughlin, J. Talbert, and N. Bascia (Eds.) *The Contexts of Teaching in Secondary Schools: Teachers' Realities* (187–218). New York: Teachers College Press.

McLaughlin, D., O'Donnell, C., and Ries, L. (1995). *Private Schools in the United States: A Statistical Profile, 1990–91.* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 95–330).

McNeil, L. (1988). *Contradictions of Control.* New York: Routledge.

Miskel, C. and Ogawa, R. (1988). "Work Motivation, Job Satisfaction, and Climate." In N. Boyan (Ed.) *Handbook of Educational Administration.* New York: Longman.

Mullens, J. (1996). *Student Learning, Teaching Quality and Professional Development: Theoretical Linkages and Current Measurement.* Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Murnane, R., Singer, J., Willett. J., Kemple, J., and Olsen, R. (Eds.) (1991). *Who Will Teach?: Policies That Matter*. Cambridge, MA: Harvard University Press.

National Commission on Excellence in Education. (1983). *A Nation at Risk: The Imperative for Educational Reform*. Washington, D.C.: Government Printing Office.

National Education Goals Panel. (1995). *National Education Goals Panel Report: Building a Nation of Learners*. Washington, D.C.: Government Printing Office.

National Opinion Research Center (NORC). (1983). *General Social Surveys, 1972–1983: Cumulative Codebook*. Chicago, IL.

Pallas, A. (1988). "School Climate in American High Schools." *Teachers College Record*, 89: 541–543.

Pfeffer, J. (1982). *Organizations and Organization Theory*. Marshfield, MA: Pitman.

Reyes, P. (1990). *Teachers and their Workplace: Commitment, Performance, Productivity*. Newbury Park, CA: Sage.

Rosenholtz, S. (1989). *Teacher's Workplace: The Social Organization of Schools*. New York: Longman.

Rowan, B. (1990). "Commitment and Control: Alternative Strategies for the Organizational Design of Schools." *Review of Research in Education, 16*. Washington, D.C.: American Educational Research Association.

Rowan, B. (1994). "Comparing Teachers' Work with Work in Other Occupations: Notes on the Professional Status of Teaching." *Educational Researcher, 23*(6): 4–17.

Rowan, B., Raudenbush, S., and Kang, S. J. (1991). "Organizational Design in High Schools: A Multilevel Analysis." *American Journal of Education*, 99: 238–260.

Sclan, E. (1993). *The Effect of Perceived Workplace Conditions on Beginning Teachers' Work Commitment, Career Choice Commitment and Planned Retention*. Ann Arbor, MI: University Microfilms International.

Shedd, J. and Bacharach, S. (1991). *Tangled Hierarchies*. San Francisco: Jossey-Bass.

Sergiovanni, T.J. and Moore, J. (1989). *Schooling for Tomorrow*. Boston: Allyn and Bacon.

Smith, T. (1995). *America's Teachers Ten Years After "A Nation at Risk."* Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 95–766).

Talbert, J. and McLaughlin, M. (1993). "Teacher Professionalism in Local School Contexts." *American Journal of Education, 102*: 123–153.

Vollmer, H. and Mills, D. (1966). *Professionalization*. Englewood Cliffs, NJ: Prentice-Hall.

Wallace, J. (1994). *Organizational and Professional Commitment in Professional and Nonprofessional Bureaucracies*. Paper presented at the annual meeting of the American Sociological Association, Los Angeles, CA.

Weis, L., Altbach, P., Kelly, G., Petrie, H., and Slaughter, S. (1989). *Crisis in Teaching*. Albany, NY: State University of New York Press.

Appendix

Additional Resources on the Schools and Staffing Survey

Additional Resources on the Schools and Staffing Survey (SASS)

SASS Data Products

The following SASS data products may be obtained free of charge while supplies last from:

U.S. Department of Education
National Center for Education Statistics
SASS Data Products
555 New Jersey Avenue, NW, Room 422
Washington, D.C. 20208-5651

Reports

- Out-of-Field Teaching and Educational Equality (NCES 96–040)
- Schools and Staffing in the United States: A Statistical Profile: 1993–94 (NCES 96–124)
- Private School Universe Survey, 1993–94 (NCES 96–143)
- SASS by State, 1993–94 Schools and Staffing Survey: Selected State Results (NCES 96–312)
- How Different? How Similar?: Comparing Key Organizational Qualities of American Public and Private Secondary Schools (NCES 96–322)
- Schools and Staffing in the United States: Selected Data for Public and Private Schools, 1993-94 (E.D. Tab, NCES 95-191)
- Private Schools in the United States: A Statistical Profile, 1990–91 (NCES 95–330)
- Teacher Supply in the U.S.: Sources of Newly Hired Teachers in Public and Private Schools, 1988–1991 (NCES 95–348)

- Characteristics of American Indian and Alaska Native Education, Results from the 1990–91 SASS (NCES 95–735)
- Teacher Supply, Teacher Qualifications and Teacher Turnover, Aspects of Teacher Supply and Demand in the U.S., 1990–91 (NCES 95–744)
- The Patterns of Teacher Compensation (NCES 95–829)
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